Amendments to the Specification:

Please replace the paragraph beginning at page 3, line 1, with the following replacement paragraph:

Figure 1 depicts the generic synthetic scheme of the methods of the invention for the production of a nucleoside modified with a signalling moiety or precursor. "A" in this case represents a signalling moiety or signalling moiety precursor (i.e. polydentate ligand). The scheme depicts the use of anhydrouracil as the anhydronucleoside, although as outlined herein others may be used. Similarly, the activation agent shown is ~~carbonyldimidazole~~ carbonyldiimidazole.

Please replace the paragraph beginning at page 14, line 3, with the following replacement paragraph:

There are a large number of known macrocyclic chelators or ligands which are used to chelate lanthanide and paramagnetic ions. See for example, Alexander, Chem. Rev. 95:273-342 (1995) and Jackels, Pharm. Med. Imag, Section III, Chap. 20, p645 (1990), expressly incorporated herein by reference, which describes a large number of macrocyclic chelators and their synthesis. Similarly, there are a number of patents which describe suitable chelators for use in the invention, including U.S. Patent Nos. 5,155,215, 5,087,440, 5,219,553, 5,188,816, 4,885,363, 5,358,704, 5,262,532, and Meyer et al., Invest. Radiol. 25: S53 (1990), all of which are also expressly ~~incorportated~~incorporated by reference. There are a variety of factors which influence the choice and stability of the chelate metal ion complex, including enthalpy and entropy effects (e.g. number, charge and basicity of coordinating groups, ligand field and conformational effects, etc.). In general, the chelator has a number of coordination atoms which are capable of binding the metal ion. The number of coordination atoms, and thus the structure of the chelator, depends on the metal ion. Thus, as will be understood by those in the art, any of the known paramagnetic metal ion chelators or lanthanide chelators

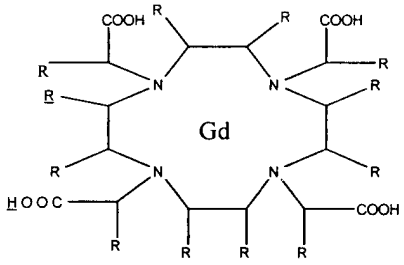
can be easily modified using the teachings herein to add a primary amine as outlined herein for attachment to a nucleoside.

Please replace the paragraph beginning at page 15, line 1, with the following replacement paragraph:

As is described herein, in a preferred embodiment the MRI agent is substituted at any number of possible positions with either a primary amine or a functional group to facilitate the addition of the primary amine for covalent attachment to the nucleoside. For example, when the contrast agent is DOTA, a preferred embodiment utilizes any one of the R sites of structure 1 as the site of ~~attachmen~~attachment of a primary amine.

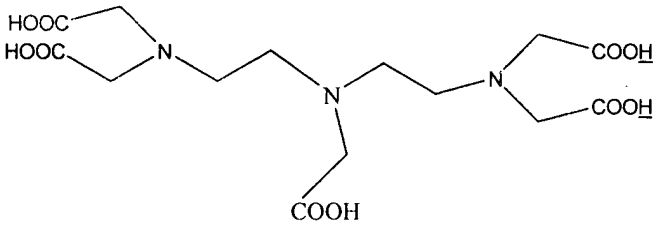
Please replace the paragraph beginning at page 15, line 6, with the following replacement paragraph:

Structure 1



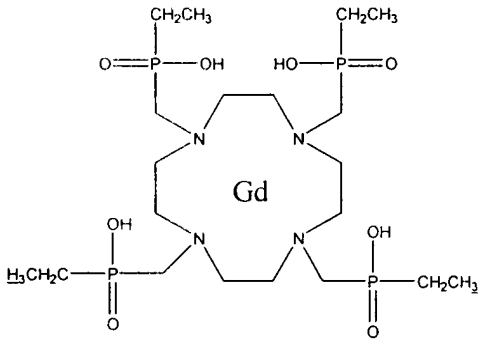
Please replace the paragraph beginning at page 16, line 5, with the following replacement paragraph:

Structure 3



Please replace the paragraph beginning at page 16, line 6, with the following replacement paragraph:

Structure 4



Please replace the paragraph beginning at page 16, line 10, with the following replacement paragraph:

As will be appreciated by those in the art, the R sites outlined herein may also comprise additional substitution groups, in addition to the R site that ultimately comprises a primary amine. Suitable substitution groups include a wide variety of groups, as will be understood by those in the art. For example, suitable substitution groups include substitution groups disclosed for DOTA and DOTA-type compounds in U.S. Patent Nos. 5,262,532, 4,885,363, ~~and~~ and 5,358,704. These groups include hydrogen, alkyl (including substituted alkyl groups and heteroalkyl groups), aryl groups (including substituted aryl and heteroaryl groups), alcohol, amino, amido, nitro, ethers, esters, aldehydes, sulfonyl, silicon moieties, halogens, sulfur containing moieties, phosphorus containing moieties, and ethylene glycols, etc. Preferred substitution groups include hydrogen. As will be appreciated by those skilled in the art, each position outlined herein may have two R groups attached (R′ and R″), although in a preferred embodiment only a single R group is attached at any particular position. Thus, for example, the MRI contrast agents utilized in the invention may be substituted at any one of the R positions with moieties to confer or neutralize charge, alter the hydrophobicity or hydrophilicity, or alter the molecular weight. The larger the molecule, the slower it rotates in solution and the relaxivity increases.

Please replace the paragraph beginning at page 20, line 1, with the following replacement paragraph:

The anhydro-nucleoside and the signalling moiety (or precursor) comprising a primary amine are added together in the presence of an activation agent to form an activated anhydronucleoside. By "activation agent" herein is meant an agent that activates the carbon for attack by the nucleophile, i.e. the nitrogen of the primary amine; that is, the agent allows the formation of carbamates. Suitable activation agents, include, but are not limited to, ~~carbonyldimidazole~~ carbonyldiimidazole, m-nitrophyenylchloroformate and p-nitrophyenylchloroformate. The anhydro-nucleoside and the signalling moiety comprising a primary amine are added generally in a 1:1 ratio. The activation agent will be added at concentrations known in the art, see Sebesta et al. supra, and McGee, supra.

Please replace the paragraph beginning at page 25, line 1, with the following replacement paragraph:

In an additional embodiment, viral and bacterial detection is done using the complexes of the invention. In this embodiment, probes are designed to detect target sequences from a variety of bacteria and viruses. For example, current blood-screening techniques rely on the detection of anti-HIV antibodies. The methods disclosed herein allow for direct screening of clinical samples to detect HIV nucleic acid sequences, particularly highly conserved HIV sequences. In addition, this allows direct monitoring of circulating virus within a patient as an improved method of assessing the efficacy of anti-viral therapies. Similarly, viruses associated with leukemia, HTLV-I and HTLV-II, may be detected in this way. Bacterial infections such as tuberculosis, ~~clymidia~~ chlamydia and other sexually transmitted diseases, may also be detected.

Please replace the paragraph beginning at page 26, line 17, with the following replacement paragraph:

To uridine that was slurried in dimethylformamide (DMF) was added diphenylcarbonate and heated to 110/C for 8 hours (step a). The cyclized intermediate ~~product~~, 2,2'-O-anhydro-1-(β-D-arabinofuranosyl) uracil, was purified by flash column chromatography. The cyclized intermediate, 2,2'-O-anhydro-1-(β-D-arabinofuranosyl) uracil, was dissolved in dichloromethane (CH_3Cl_2) and a catalytic amount of dimethylaminopyridine (DMAP) added along with a 1.1 excess of dimethoxytrityl chloride (DMTCl) and kept at room temperature for 24 hours. The solution was evaporated to dryness and purified by flash column chromatography (step b). The purified product, 5'-O-(4,4'-Dimethoxytrityl)-2,2'-O-anhydro-1-(β-D-arabinofuranosyl) uracil, was dissolved in CH_3Cl_2 and 2 equivalents of 1,1'- ~~carbonyldimidazole~~ carbonyldiimidazole added and allowed to react for 24 hrs (step c). To this solution was added 1 equiv of diisopropylethylamine (DIEA) and 1.1 equiv. of 2-aminomethylpyridine and allowed to react for and additional 24 hours (step d).

Please replace the paragraph beginning on page 27, line 6 with the following rewritten paragraph:

After purification (not necessary), the intermediate product formed from step d, was suspended in tetrahydrofuran (THF) and 1,8-diazabicyclo-undec-7-ene (DBU) added and allowed to react for 48 hours (step e). ~~This~~The resulting material, 5'-O-(4,4'-dimethoxytrityl)-2'-N,3'-O-(2-oxooxazolidinyl)-2'-aminomethylpyridyl-2'-deoxyruidine, was treated with NaOH in methanol/water for 24 hours at room temperature (step f). The product, 5'-O-(4,4'-dimethoxytrityl)-2'-aminomethylpyridyl-2'-deoxyuridine, was purified by flash column chromatograpy and characterized. ^{1}HNMR and mass spec. confirmed the expected product: 5'-O-(4,4'-dimethoxytrityl)-2'-aminomethylpyridyl-2'-deoxyuridine.

Please add the following new paragraphs beginning at line 12, page 27:

This example is directed to the synthesis shown in Figure 3.

To uridine that was slurried in dimethylformamide (DMF) was added diphenylcarbonate and heated to 110/C for 8 hours (step **a**). The product, 2,2'-O-anhydro-1-(β-D-arabinofuranosyl) uracil, was purified by flash column chromatography. The cyclized intermediate, 2,2'-O-anhydro-1-(β-D-arabinofuranosyl) uracil, was dissolved in dichloromethane (CH_3Cl_2) and a catalytic amount of dimethylaminopyridine (DMAP) added along with a 1.1 excess of dimethoxytrityl chloride (DMTCl) and kept at room temperature for 24 hours (step **b**). The solution was evaporated to dryness and purified by flash column chromatography. The purified product, 5'-O-(4,4'-Dimethoxytrityl)-2,2'-O-anhydro-1-(β-D-arabinofuranosyl) uracil, was dissolved in CH_3Cl_2 and 2 equivalents of 1,1'-carbonyldiimidazole added and allowed to react for 24 hrs (step **c**). To this solution was added 1 equiv of diisopropylethylamine (DIEA) and 1.1 equiv. of 2-aminomethylpyridine and allowed to react for and additional 24 hours (step **d**). After purification (not necessary) the intermediate product formed from step **d** was suspended in tetrahydrofuran (THF) and 1,8-diazabicyclo-undec-7-ene (DBU) added and allowed to react for 48 hours (step **e**). The resulting material, 5'-O-(4,4'-dimethoxytrityl)-2'-N,3'-O-(2-oxooxazolidinyl)-2'-aminomethylpyridyl-2'-deoxyruidine, was treated with NaOH in methanol/water for 24 hours at room temperature (step **f**). The resulting product, 5'-O-(4,4'-dimethoxytrityl)-2'-iminomethylpyridyl-2'-deoxyuridine, was dissolved in ethanol and $Ru(acac)_2(CH_3CN)_2$ (impy) was added to the solution (step **g**); where acac = acetylacetonate and impy = 5'-O-(4,4'-dimethoxytrityl)-2'-iminomrthylpyridyl-2'-deoxyuridine). The reaction was refluxed for 4 hr under argon, filtered, the solvent removed under reduced pressure, and the residue purified by flash chromatograph to yield bis(acetylacetonate)ruthenium(II)-5'-O-(4,4'-dimethoxytrityl)-2'-iminomethylpyridyl-2'-deoxyuridine. To bis(acetylacetonate)ruthenium(II)-5'-O-(4,4'-dimethoxytrityl)-2'-iminomethylpyridyl-2'-deoxyuridine and (dimethylamino)pyridine was

added succinic anhydride. The reaction was stirred for 19 hr. at room temperature under positive pressure argon. The solvent was removed and the residue co-evaporated with toluene. The residue was purified by flash chromatography and a saturated aqueous solution of ammonium hexaflurophosphate was added to the precipitate the product, bis(acetylacetonate)ruthenium(II)-5'-O-(4,4'-dimethoxytrityl)-2'-iminomethylpyridyl-2'-deoxyuridine phosphoramidite (step **h**).